

DaimlerChrysler AG

Patent Claims

- 5     1. A method for purifying the gases that are to be fed to a fuel cell for operation by removing constituents which are unfavorable to operation of the fuel cell, characterized in that the gas(es) are passed across a filter system which is designed both to  
10    separate off particulates and to remove constituents in gas and vapor form which have a damaging effect on operation of the fuel cell, and in that the gas(es) are fed to the fuel cell on leaving the filter system.
- 15    2. The method as claimed in claim 1, characterized in that the gas(es) are passed across a filter system which can be regenerated and is monitored on the basis of criteria indicating a drop in the filter action and the need for regeneration, with a message being  
20    generated when these criteria are reached.
- 25    3. An arrangement for purifying the gases that are to be fed to a fuel cell for operation by removing constituents which are unfavorable to operation of the fuel cell, characterized in that a filter system (5,  
12) is arranged at a location in the gas-carrying passage (11) for feeding the respective gas to the fuel cell (2), which filter system separates out both  
30    particulates and constituents in gas or vapor form which have a damaging effect on operation of the fuel cell.
- 35    4. The arrangement as claimed in claim 3, characterized in that the filter system (5) has a first filter (6) for particulates, downstream of which there is a second filter (7) with a substance for taking up and binding pollutants in gas or vapor form.

5. The arrangement as claimed in claim 3, characterized in that the filter system (12) comprises a unit in which a dry filter for particulates and a substance for taking up and binding pollutants in gas 5 or vapor form are arranged together.

6. The arrangement as claimed in at least one of claims 3 to 5, characterized in that the filter system (12) is designed such that it can be regenerated, and 10 in that the regeneration can be triggered by an actuating element (16).

7. The arrangement as claimed in at least one of claims 3 to 6, characterized in that the filter system 15 (5, 12) is arranged in the gas-carrying passage (11) upstream of the gas inlet of a compressor (4).

8. The arrangement as claimed in at least one of claims 3 or 5 to 7, characterized in that the filter 20 system is composed of sections which are connected in series and the filter function of which is matched to the type of constituents which are to be filtered in the gas.

25 9. The arrangement as claimed in at least one of claims 3 to 8, characterized in that there is a device (18) for measuring the pressure difference of the filter system (12), the measured values from which are transmitted to an evaluation unit (19) and compared 30 with a predetermined limit value, with a message being generated when the latter is reached.

10. The arrangement as claimed in at least one of claims 3 to 8, characterized in that at least one gas 35 sensor for a polluting gas is arranged downstream of the filter system, as seen in the direction of flow of the gas, the measured values from which gas sensor are transmitted to an evaluation unit and compared with a

predeterminable limit value, with a message being generated when the latter is reached.

11. The arrangement as claimed in at least one of  
5 claims 3 to 10, characterized in that a gas fed to the fuel cell is air, the oxygen content of which reacts with a fuel gas in the fuel cell (2).

12. The arrangement as claimed in at least one of  
10 claims 3 to 11, characterized in that it is arranged in a mobile device.